

REMARKS

Claims 7-38 are pending. Claims 23 and 35 have been amended to replace “polybutyrene” with “polybutylene” without narrowing the scopes of the claims. Support can be found at least in page 10, line 10 of the specification. No new matter has been introduced.

Applicants thank Examiner Jones Jr. for withdrawing the claim rejections under 35 U.S.C. §112, first paragraph and second paragraph.

Claim Interpretation

The Office Action interprets the phrase “a portion” in claims 7, 17, 25, and 38 as meaning “any amount of glycidyl and/or isocyanate functional group greater than 0%.” Applicants respectfully disagree. A person of ordinary skill in the art would understand that “a portion” means any amount greater than 0% but less than 100%. In other words, “a portion” does not encompass 100%.

Claim objections

Claims 23 and 35 were objected to because both claims contain the term “polybutyrene.” Claims 23 and 35 have been amended to replace “polybutyrene” with “polybutylene” without narrowing the scopes of the claims. Support may be found at least in page 10, line 10 of the specification. Withdrawal of the objections is respectfully requested.

Claim Rejections — 35 U.S.C. §102/103

I. Applicants respectfully traverse the rejections of claims 17-21 and 23-29 under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over Shiga et al. (US 2004/0010073; US 7,084,214).

Applicants note that Shiga is not a §102(b) reference because Shiga was published on January 15, 2004, less than one year prior to the international filing date of the present application, December 1, 2004. Applicants respectfully request withdrawal of the rejections of claims 17-21 and 23-29 under 35 U.S.C. §102(b) as being anticipated by Shiga.

According to the Office Action (page 5, paragraph 10), the disclosures in column 8, lines 7-12 of Shiga are indicative or would render obvious that a portion of the glycidyl and/or isocyanate groups of the reactive compound are reacted with the amorphous polyester. Applicants respectfully disagree. Shiga discloses that “the [polyester] resin is partially crosslinked” and that “the polyester resin forms a partially crosslinked product when the reactive compound reacts with the hydroxyl group and carboxyl group of the polyester to form a reaction product in the melt extrusion process.” Shiga, column 8, line 6 and 8-12. The disclosures of Shiga at best would indicate to one of ordinary skill in the art that only a part (i.e., not all) of the hydroxyl groups and carboxyl groups of the polyester are reacted with the reactive compound in the polyester composition of Shiga. But Shiga fails to teach or suggest a portion (i.e. more than 0% but less than 100%) of the glycidyl and/or isocyanate groups of the reactive compound are reacted with the amorphous polyester. This is one of the reasons that claims 17-21 and 23-29 are not anticipated or rendered obvious by Shiga.

The Office Action also states that the process of Shiga’s Example 14 is similar to the process of present Example 1 so that a portion of the reactive compound will react with the amorphous polyester in the process of Shiga’s Example 14. (Office Action, page 7, paragraph 15). But Shiga’s Example 14 is different from present Example 1. In present Example 1, the amorphous polyester resin (A) and the reactive compound (I) (and a glycerin monosteric acid ester) were first mixed, melted, kneaded, extruded, and pelletized to obtain a modifier for a

polyester resin (page 22, lines 17-25). This step was carried out in order to react a portion (i.e., more than 0% but less than 100%) of the two or more glycidyl groups and/or isocyanate groups of the reactive compound (II) with the amorphous polyester resin (I). Then, in the next step, the modifier and the amorphous polyester (B) were mixed to provide a dry blend, which was in turn injection molded. The dry blend of the modifier and the amorphous polyester (B) of instant Example 1 illustrates one of the embodiments of claim 7. More specifically, the amorphous polyester resin (A), reactive compound (I), and amorphous polyester resin (B) in Example 1 are one of the illustrations of the amorphous polyester resin (I), reactive compound (II), and amorphous polyester resin (III) recited in claims 7 and 25.

By contrast, in the process of Shiga's Example 14, the amorphous polyester (A), reactive compound (R), and crystalline polyester (a) were directly mixed together. That is, the process of Shiga lacks the step of mixing, melting, and kneading the amorphous polyester (A) and the reactive compound (R) to react a portion (i.e., more than 0% but less than 100%) of the two or more glycidyl groups and/or isocyanate groups of the reactive compound (R) with the amorphous polyester resin (A) to obtain a modifier for a polyester resin before mixing the modifier with more amorphous polyester. Shiga's process, in which the amorphous polyester (A), reactive compound (R), and crystalline polyester (a) were directly mixed together would cause gelation, as discussed in the Response to Office Action filed on June 16, 2009 (page 9, lines 3-8). On the other hand, the claimed process, in which an amorphous polyester resin (I) and the reactive compound (II) were first mixed and kneaded so that a portion (i.e., more than 0% but less than 100%) of the two or more glycidyl groups and/or isocyanate groups of the reactive compound (II) were reacted with the amorphous polyester resin (I) to obtain a modifier for a polyester resin before mixing the modifier with an amorphous polyester resin (III) and/or a

crystalline polyester resin (IV), would provide unexpected superior results in terms of moldability, mechanical property, and transparency (see specification, page 14, line 27 to page 15, line 7). Furthermore, the product of the present Example 1 would show no gelation during molding (as pointed out in page 10, lines 16-17 of the Amendment Accompanying RCE filed on March 1, 2010. In addition, as discussed in the Amendment Accompanying RCE filed on March 1, 2010 (page 9, the fourth paragraph), the present invention can achieve the following features α , β , and γ :

Feature α : the modifier for polyester resin is larger in molecular weight than the reactive compound (II) alone;

Feature β : the modifier for polyester resin is larger in affinity for the amorphous polyester resin (III) and/or the crystalline polyester resin (IV) than the reactive compound (II) alone;

Feature γ : the glycidyl groups and/or isocyanate groups of the reactive compound (II) that remain (i.e. that have not reacted with the amorphous polyester resin (I)) are reacted with the amorphous polyester resin (III) and/or the crystalline polyester resin (IV).

Because Shiga fails to teach or suggest the claimed polyester resin composition or the claimed process for producing a molded article, the claimed invention are not anticipated or rendered obvious by Shiga. Withdrawal of the anticipation and obviousness rejections is respectfully requested.

II. Applicants respectfully traverse the rejection of claim 38 under 35 U.S.C. §102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) being obvious over Akira et al. (JP 2003238777).

Examples 1-8 of Akira do not indicate using two or more types of polyester resins. Therefore, Akira does not teach or suggest a process of the present Example 1 or a modifier used in the process according to any of the present claims 25-36. Withdrawal of the rejection is respectfully requested.

Claim Rejections – 35 U.S.C. §103

I. Applicants respectfully traverse the obviousness rejections of claims 7-11, 13-15, 25-29, and 31-33 over Avramova et al. (US 4,915,885) in view of Akira.

Avramova in view of Akira does not teach or suggest a polyester resin composition, as recited in claim 7, comprising an amorphous polyester resin (I), a reactive compound (II), and an amorphous polyester resin (III), wherein a portion of the two or more glycidyl groups and/or isocyanate groups of said reactive compound (II) is reacted with said amorphous polyester resin (I). In addition, Avramova in view of Akira fails to teach or suggest a process, as recited in claim 25, comprising mixing a modifier with an amorphous polyester resin (III) and/or a crystalline polyester resin (IV) wherein a portion of the two or more glycidyl groups and/or isocyanate groups of the reactive compound (II) is reacted with the amorphous polyester resin (I).

Avramova merely discloses a homogeneous amorphous polymeric blend of polyethyleneterephthalate (PET) and polybutyleneterephthalate (PBT) (Abstract). As the Office Action acknowledges (page 10, paragraph 24), Avramova does not teach a reactive compound (II) containing two or more glycidyl groups and/or isocyanate groups per molecule and having a weight average molecular weight of not less than 200 and not more than 500 thousands. Akira does not teach or suggest a composition comprising a reactive compound and two or more types

of polyester resins or a process using two or more types of polyester resins (see Examples 1-8 of Akira). Avramova in view of Akira, at best would arrive at a process as disclosed in Example 14 of Shiga, which, as discussed above, fails to teach or suggest reacting an amorphous polyester resin with a portion of two or more glycidyl groups and/or isocyanate groups of a reactive compound to obtain a modifier for polyester resin, and then mixing the modifier with a second polyester resin. Therefore, the claimed invention would not have been obvious over Avramova in view of Akira. Withdrawal of the rejections is respectfully requested.

II. Applicants respectfully traverse the obviousness rejections of claims 12, 16, 30, and 34, over Avramova et al. (US 4,915,885) in view of Akira as applied to claims 7 and 25, further in view of Borman (US 3,953,404).

As discussed above, Avramova and Akira, even when taken in combination, fail to disclose the polyester resin composition of claim 7 or the process for producing a molded article of claim 25, wherein a portion of the two or more glycidyl groups and/or isocyanate groups of the reactive compound (II) is reacted with the amorphous polyester resin (I). This deficiency is not cured by Borman. Borman merely discloses a branched copolyester containing a polyfunctional branching component (col. 3, lines 25-28), but Borman is silent on the preparation of a modifier by reacting an amorphous polyester resin with a portion of the two or more glycidyl groups and/or isocyanate groups of the reactive compound (II), as recited in claim 25. Neither does Borman teach or suggest a polyester resin composition wherein an amorphous polyester resin is reacted with a portion of the two or more glycidyl groups and/or isocyanate groups of the reactive compound, as recited in claim 7. Because Avramova in view of Akira and Borman fails to disclose every limitation of claim 7 or 25, a prima facie case of obviousness has not been established. Withdrawal of the rejections is respectfully requested.

III. Applicants respectfully traverse the obviousness rejection of claim 22 over Shiga as applied to claim 17, and further in view of Borman.

As discussed above, neither Shiga nor Borman teaches or suggests a polyester resin composition wherein an amorphous polyester resin is reacted with a portion of the two or more glycidyl groups and/or isocyanate groups of the reactive compound, as recited in claim 7. Claim 22 would not have been obvious over Shiga in view of Borman. Withdrawal of the rejection is respectfully requested.

CONCLUSION

The Examiner is encouraged to contact the undersigned regarding any questions concerning this amendment. In the event that the filing of this paper is deemed not timely, applicants petition for an appropriate extension of time. The Commissioner is authorized to debit Deposit Account No. 11-0600 the petition fee and any other fees that may be required in relation to this paper.

Respectfully submitted,
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